

CLAIMS

1) Movable gripper for machines for the packaging of products with stretchable film, placed under the posterior folder (6), which, with the pusher (8) for the expulsion of the packaged product are assembled upon a same horizontal translation carriage (1), gripper of the type which comprises a flat and superior jaw (12), carried by a forked arm (112) inter-fulcrumed upon a shaft (10), which is horizontal and parallel to said carriage and rotatably supported by at least a pair of parallel supports (201) integral to the median and posterior portion of the same carriage, on the centerline of said shaft being fixed the end of the arm (127) which carries the lower jaw (27) of the same gripper which is referred to and the said shaft being provided at its end with a square lever (33) with a lateral appendix for the co-operation with the cam means for the opening and closing operations of the gripper (P) which can be maintained horizontal or may be lowered by the action of eccentric means keyed on a shaft (17) parallel to the one for the fulcrum of the gripper, rotatably supported by the same support (201) and which is provided at its end with a square lever (22) for the co-operation with cam means which encounters during the movement of the carriage, gripper of such a type characterised by the fact that said eccentric means (19) co-operate with opposite portions (112', 15) provided on the posterior and forked portion of the stem of the upper jaw (12) of the gripper, the whole in such a manner to control with a double effect action the oscillation of the same gripper around the fulcrum shaft (10).

2) Gripper according to claim 1) characterised by the fact that said eccentric means (19) are constituted by a cylindrical and round section body (19) of suitable material, provided in eccentric position and parallelly to its axis with a hole traversed by the support shaft (17) upon which the same eccentric is fixed, for example, with a grub screw (18).

3) Gripper according to claim 1) characterised by the fact that the eccentric (19) superiorly co-operates with a bar (112') integral to the posterior fork (112) of the arm of the upper jaw (12) which fork supports in contrast to said bar and with the interposition of regulation eccentric means (13, 20) a pin (14) parallel to the shaft (17)

with the eccentric and upon which there is rotatably assembled a roller or bearing (15) which co-operates by rolling friction with the lower portion of the said eccentric (19).

4) Gripper according to claim 3), characterised by the fact that the bar (112') which co-operates with the upper portion of the eccentric (19), rotatably supports a roller or another suitable co-operation mean with rolling friction with the same eccentric (19).

5) Gripper according to claim 1), characterised by the fact that the shaft (17) which carries the eccentric (19) is rotatably supported at the more distant end from the same eccentric, by means of a support (21) placed at the level of a side of the carriage (1) to which said support is fixed and on said end of the shaft which is projecting from said support, there is fixed a square lever (22) upwardly oriented and toward the *anterior front* of the gripper, provided at the end with a lateral roller (23) and that when it is in its rest position is pushed by the action of the elastic means (24) resting on a lower retainer (122) integral with said support (21), the whole in such a manner that in said rest position, the eccentric (19) presents the major eccentricity downwardly oriented and the upper jaw (12) of the gripper results raised and in contact with the overhanging posterior folder (6).

6) Gripper according to claim 5) characterised by the fact that the elastic means (24) which contrast the rotation of the shaft (17) for the support of the eccentric (19) are constituted by a pre-loaded needle spring which is wound on a portion of said shaft, and also anchored with one end to a bush (25, 26) fixed on the same shaft and anchored with the other end to the posterior support (201) of the carriage which rotatably carries the same shaft (17) and the fulcrum shaft (10) of the same gripper (P) which is referred to.

7) Gripper according to claim 1), characterised by the fact that during the translation of the carriage (1) which carries the gripper, moving close to the distributor of the film, the end roller (23) of the lever (22) which controls the shaft with the eccentric (19), arrives to co-operate with the front (151) of a fixed cam (51) upon which front the same roller progressively goes up raising said lever in vertical position

and then lowers while said lever continues in the backwards rotation, afterwards said roller co-operates with a corner zone (251) suitably bevelled of said cam and finally runs along the horizontal inferior side (351) of the same cam, while said lever (22) remains backwardly oriented, in the condition in which the eccentric (19) upwardly oriented with the major eccentricity and with the gripper downwardly oriented, in the correct position for the co-operation with the distributor D of the packaging film.

8) Gripper according to claim 1) characterised by the fact that the fulcrum shaft (10) of the jaws of the same gripper, projects with both ends from the small annular frame (201) for the support of the carriage (1) and on both projecting portions carries wound needle springs (29, 29') suitably pre-loaded, which with one end are anchored to bushings (30, 30') fixed to said shaft, while with the other end the said springs are anchored to portions (31, 31', 312, 312') fixed to the terminal fork portion of the arm (112) of the upper jaw (12), in such a manner that the two jaws of the gripper result to be pushed by said springs the one against the other, with a correct pressure.

9) Gripper according to claim 8) characterised by the fact that the square lever (33) fixed to the end of the fulcrum shaft (10) of the same gripper, is provided at the end with a lateral roller (34) parallel to said shaft and that during the translation of the carriage (1), when it is required that the gripper opens itself, runs along the lower side of a lever (37) downwardly oriented, fulcrumed with the upper end to an axis (38) which is integral to portions (36) fixed to the frame of the machine and parallel to said shaft, the lower end of said lever (37) being provided with a lateral recess (137) in which is constrained with interfulcrum (41) a small lever (42) which projects under the main lever with a portion (142) having the function of trigger, placed on the path of said roller (34) and which is superiorly projecting from said main lever with a portion having the function of an hook, provided with a lateral appendix (43) which by an elastic means (46) is pushed to engage a lateral recess (44) of a small vertical and fixed guide (45) and elastic means (47) to upwardly urge said lever (37) being provided, the whole in such a manner that when the said roller (34) co-operates with said inclined lever (37), the lower jaw of the gripper is moved away from the upper jaw and when the same gripper has arrived opened and in low position in co-

operation with said gripper (PD) of the distributor (D) of the film, said roller (34) co-operates with the lower trigger (142) of the small lever (42) and causes the disengagement of the upper hook (43) of this one by the retaining step (44), so that said lever (37) with the function of cam, is raised by the action of said elastic means (47) and is arrested with the hook (43) against an elastic bumper (50), while the lower jaw (27) of the gripper is hastily raised and carries the head of the film retained by the comb of the film distributor (D), to be fixed between the teeth of said jaw (27), and a strip of rubber (28) of the upper jaw of the same gripper, means being provided to re-load in the downwardly inclined position said lever (37) with the function of cam, as soon as said roller (34) has gone beyond said lever during the displacement run of the gripper from the film distributor.

10) Gripper according to claim 9), characterised by the fact that the lever (37) with function of cam carries integral and laterally at its fulcrumed end, in a position which not interfere with the roller (34) and with the relative lever (33) of the opening and closing movement of the said gripper, a short lever arm (40) downwardly oriented, which ends with a rounded end (140) or provided with roller, with which is co-operating a cam (35) fixed to the carriage (1) which provides to the re-loading of said lever with the function of cam during the displacement run of the gripper from the film distributor.